

What is claimed is:

1. A projector comprising:
 - an image display device which displays an image;
 - a projection section which illuminates the image display
- 5 device with a light source lamp to project reflected light or transmitted light from the image display device onto a screen, thereby projecting the image displayed on the image display device onto the screen;
- 10 a rectifying circuit which full-wave rectifies an AC power supply input to a main unit;
- a power-factor improving circuit which improves a power factor of an output of the rectifying circuit;
- 15 a lamp power supplying circuit to which a DC output of the power-factor improving circuit is supplied as an input power supply, and which supplies a power to the light source lamp;
- a driver circuit which operates the lamp power supplying circuit; and
- 20 a DC-DC converting circuit which uses a transformer to convert the DC output of the power-factor improving circuit to a DC current of a predetermined voltage, and which supplies the DC current to a secondary side;
- wherein an auxiliary winding is disposed in a primary side of the transformer of the DC-DC converting circuit;
- 25 the power-factor improving circuit is a circuit which has a switching transistor and a control IC for controlling the

switching transistor, and in which a voltage appearing in the auxiliary winding is used as a power supply for operating the control IC; and

when the voltage appearing in the auxiliary winding is 5 lower than a preset voltage, the driver circuit sets the lamp power supplying circuit to a stop a state.

2. A power supply device comprising:

a rectifying circuit which full-wave rectifies an input 10 AC power supply;

a power-factor improving circuit which improves a power factor of an output of the rectifying circuit;

a lamp power supplying circuit to which a DC output of the power-factor improving circuit is supplied as an input power 15 supply, and which supplies a power to a light source lamp;

a driver circuit which operates the lamp power supplying circuit; and

a DC-DC converting circuit which uses a transformer to convert the DC output of the power-factor improving circuit to 20 a DC current of a predetermined voltage, and which supplies the DC current to a secondary side;

wherein an auxiliary winding is disposed in a primary side of the transformer of the DC-DC converting circuit;

the power-factor improving circuit is a circuit which has 25 a switching transistor and a control IC for controlling the

switching transistor, and in which a voltage appearing in the auxiliary winding is used as a power supply for operating the control IC; and

when the voltage appearing in the auxiliary winding is
5 lower than a preset voltage, the driver circuit sets the lamp power supplying circuit to a stop state.

3. A power supply device comprising:

a rectifying circuit which full-wave rectifies an input
10 AC power supply;

a power-factor improving circuit which improves a power factor of an output of the rectifying circuit;

a lamp power supplying circuit to which a DC output of the power-factor improving circuit is supplied as an input power
15 supply, and which supplies a power to a light source lamp;

a driver circuit which operates the lamp power supplying circuit; and

a DC-DC converting circuit which uses a transformer to convert the DC output of the power-factor improving circuit to
20 a DC current of a predetermined voltage, and which supplies the DC current to a secondary side;

wherein an auxiliary winding is disposed in a primary side of the transformer of the DC-DC converting circuit; and

in accordance with a voltage appearing in the auxiliary
25 winding, the driver circuit switches between a stop state and

an operation state of the lamp power supplying circuit.

4. The power supply device according to claim 3, wherein, when the voltage appearing in the auxiliary winding is lower than a preset voltage, the driver circuit sets the lamp power supplying circuit to the stop state.
5. The power supply device according to claim 3, wherein the power-factor improving circuit is a circuit which has a switching transistor and a control IC for controlling the switching transistor, and in which the voltage appearing in the auxiliary winding is used as a power supply for operating the control IC.
- 15 6. The power supply device according to claim 4, wherein the power-factor improving circuit is a circuit which has a switching transistor and a control IC for controlling the switching transistor, and in which the voltage appearing in the auxiliary winding is used as a power supply for operating the control IC.
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